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TO		INITIALS	DATE	REMARKS
DIRECTOR				
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DDI-1075-70

MPIC/D-105-70

9 APR 1970

MEMORANDUM FOR: Assistant Deputy Director for Intelligence

SUBJECT : Proposed Contract with [redacted] for a Viewing Systems Study at a Cost of [redacted] from FY-1970 R&D Funds

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1. This memorandum is a request for approval to commit R&D funds for a contract. The specific request is stated in Paragraph 8.

2. When developing complex optical equipments, there are many approaches which will accomplish various levels of optical performance, each with different cost implications. The Government engineer, in evaluating these various options, must be familiar with the technical and practical manufacturing trade-offs inherent in each approach. Through his previous exposure to optics, he has learned that he is not dealing with an exact science, but, rather, one in which the intuitive sense of the designer plays a large part. However, he often has no recourse other than to rely heavily upon information gleaned from detailed technical treatises or through personal contacts in the optical industry. The former source is usually directed toward the theoretical aspects of optics while the latter is often shaded by the proprietary interest of a single company or organization. There is no known single information source from which the practical aspects of optical design and manufacture implications may be obtained.

3. The proposed Viewing Systems Study would compile in one source the collective experience of both Government and industry, objectively organize this experience, and document the whole, so as to provide a base reference of practical optical technology. Application of the knowledge obtained from the publication should effect cost savings for the Government. For example, an operational requirement for a piece of optical equipment might suggest a need for a resolution of 200 lines per millimeter. While this instrument could be designed, fabrication considerations might dictate that a 190 line per millimeter instrument would cost only sixty percent of the cost of the 200 line instrument. As a consequence, a realistic reduction of the specifications could result and the required operational task still be accomplished. Contractors seldom point out such trade-offs in their proposals. Considering another facet of the problem, it is conceivable that during the development of a prototype viewing device, an optical system might be designed which would give outstanding performance; however, the cost of subsequent mass production of the optics might be prohibitively high. Advance

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knowledge of such a possibility could be used as justification for exploring other methods of attacking the optical problem during the prototype phase, or lead to a realistic compromise between ideal performance and the practical realities of cost effective production. Such data would be catalogued in a publication resulting from the Viewing Systems Study. With this information in hand, the project officer would be able to effect logical compromises in our development objectives and in our selection of design alternatives during technical proposal evaluation.

4. This minimal technical risk study will consist of four major tasks, some of which may be performed in parallel. These tasks will address themselves to (a) the investigation and collection of state-of-the-art data, (b) the analysis and collation of findings, (c) the publication of finished material in a convenient cross-referenced manual, and (d) continuing consultation with the sponsor's engineers. On the surface, it would appear that such a study could be accomplished by anyone having sufficient time and perseverance to attack the task. Actually, the problem is much more complex. The analysis of the collected data and its reduction to a useable form demands a peculiar expertise enjoyed only by a limited number of personnel who have worked in the optical manufacturing industry for many years.

5. Three replies were received in response to our Requests for Proposal; two from well-known optical manufacturers, and one from a recently formed company specializing in research, design, and development of optical and electro-optical systems and equipment. This latter company, [redacted], was chosen as the proposed contractor, based primarily on the excellence of its work plan, its program management presentation, its technical capability, and the experience of its personnel. The price of [redacted] for a period of performance of one year, was competitive with the other two bidders. It should be noted, that although this company is a relative newcomer to the optics field, the capabilities of its personnel were well established during their previous association with the optics section of [redacted]. Also, since the [redacted] is not presently a manufacturer of optical equipment, it is anticipated that its analysis and presentation of the required optical data will tend to be less biased.

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6. One of the requirements listed in the Development Objectives was to investigate and assign priorities to the optical and opto-mechanical parameters to be studied, the list being subject to approval by the Government's Technical Representative. Therefore, the overall extent of the study effort will not be definitely known until this

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initial investigation is accomplished. The best estimate is that a minimum of two years of effort will be required to complete the study. This indicates that a one-year follow-on contract may be required with a subsequent updating effort spaced some years in the future. Should this estimate prove valid, the projected cost of the total program could be approximately [redacted] for the first year (presently proposed contract), [redacted] for the second year, and [redacted] for one update about five years in the future. This project has been coordinated with DDS&T and EXRAND, and through review of other Agency R&D programs. It has been determined that there is no known duplication of effort.

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7. The Project Officer for the Viewing Systems Study will be Mr. [redacted] of the Systems Research Branch, Research & Engineering Division, Technical Services & Support Group, National Photographic Interpretation Center. His telephone number is IDS code 143, extension [redacted], with a contract classification and Agency association of CONFIDENTIAL are recommended. Work and reports classifications of UNCLASSIFIED are also recommended.

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8. It is requested that approval be granted to negotiate with [redacted] for a cost reimbursement type contract to conduct the Viewing Systems Study for a period of performance of one year, at a cost not to exceed [redacted]

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ARTHUR C. LUNDAHL
Director
National Photographic Interpretation Center

Attachments:
1. Proposal
2. Form 2420

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APPROVED: [redacted]
Assistant Deputy Director for Intelligence

17 APR 1970
Date

Distribution:
Original - NPIC/TSSG/SC&PS (After approval)
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